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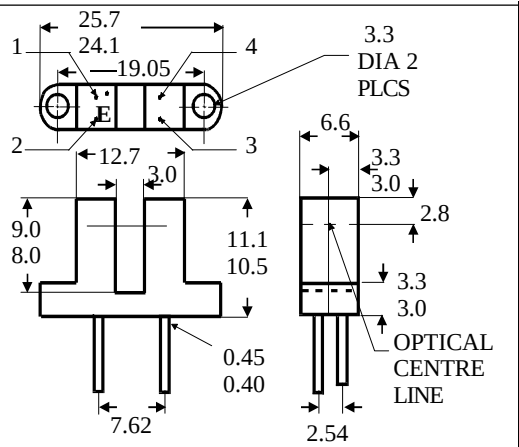
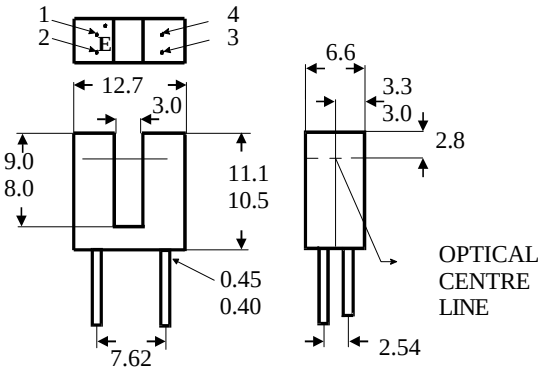
H21A1, H21A2, H21A3, H21A4, H21A5, H21A6
H22A1, H22A2, H22A3, H22A4, H22A5, H22A6

Jameco Part Number 114104

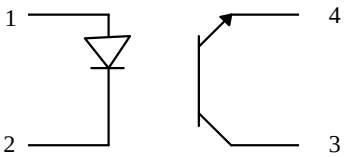
1mm APERTURE OPTO-ELECTRONIC SINGLE CHANNEL SLOTTED INTERRUPTER SWITCHES WITH TRANSISTOR SENSORS

Dimensions in mm





H21A1, H21A4
H21A2, H21A5
H21A3, H21A6



H22A1, H22A4
H22A2, H22A5
H22A3, H22A6

DESCRIPTION

The H21A_ and H22A_ series of opaque photointerrupters are single channel switches consisting of a Gallium Arsenide infrared emitting diode and a NPN silicon photo transistor mounted in a polycarbonate housing. The package is designed to optimise the mechanical resolution, coupling efficiency, ambient light rejection, cost and reliability. Operating on the principle that objects opaque to infrared will interrupt the transmission of light between an infrared emitting diode and a photo sensor switching the output from an "ON" state to an "OFF" state.

FEATURES

- High Gain
- 3mm Gap between LED and Detector
- Polycarbonate case protected against ambient light

APPLICATIONS

- Copiers, Printers, Facsimilies, Record Players, Casette Decks, Optoelectronic Switches

ABSOLUTE MAXIMUM RATINGS
(25°C unless otherwise specified)

Storage Temperature	-40°C to + 85°C
Operating Temperature	-25°C to + 85°C
Lead Soldering Temperature (1/16 inch (1.6mm) from case for 10 secs)	260°C

INPUT DIODE

Forward Current	50mA
Reverse Voltage	5V
Power Dissipation	75mW

OUTPUT TRANSISTOR

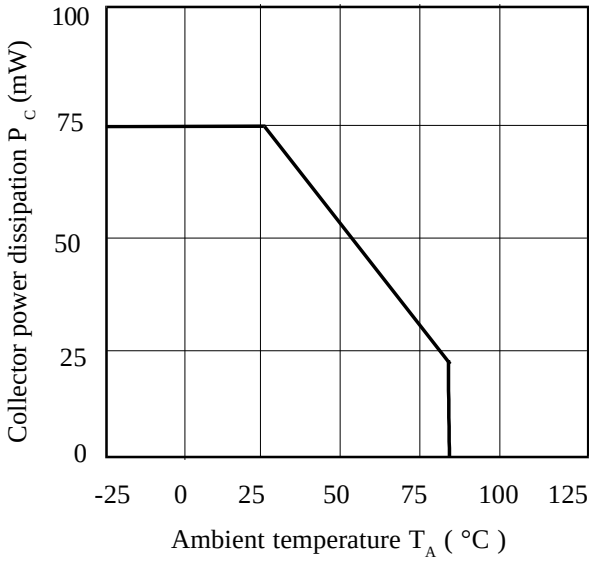
Collector-emitter Voltage BV_{CEO}	
H21A4, 5, 6, H22A4, 5, 6	55V
H21A1, 2, 3, H22A1, 2, 3	30V
Emitter-collector Voltage BV_{ECO}	5V
Collector Current I_C	20mA
Power Dissipation	75mW

ELECTRICAL CHARACTERISTICS (T_A= 25°C Unless otherwise noted)

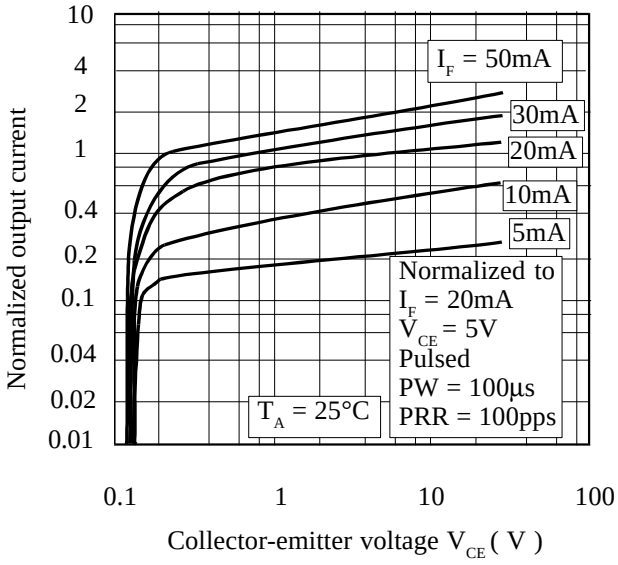
PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage (V_F)		1.2	1.7	V	I_F = 50mA
	Reverse Voltage (V_R)	5			V	I_R = 100µA
	Reverse Current (I_R)			100	µA	V_R = 5V
Output	Collector-emitter Breakdown (BV_{CEO}) (Note 1)					
	H21A4, 5, 6, H22A4, 5, 6	55			V	I_C = 1mA
	H21A1, 2, 3, H22A1, 2, 3	30			V	I_C = 1mA
	Emitter-collector Breakdown (BV_{ECO})	5			V	I_E = 100µA
	Collector-emitter Dark Current (I_{CEO})			100	nA	V_{CE} = 10V
Coupled	On-State Collector Current I_C ($_{ON}$) (Note 1)					
	H21A1, 4, H22A1, 4	0.15			mA	5mA I_F, 5V V_{CE}
		1.0			mA	20mA I_F, 5V V_{CE}
		1.9			mA	30mA I_F, 5V V_{CE}
	H21A2, 5, H22A2, 5	0.3			mA	5mA I_F, 5V V_{CE}
		2.0			mA	20mA I_F, 5V V_{CE}
		3.0			mA	30mA I_F, 5V V_{CE}
	H21A3, 6, H22A3, 6	0.6			mA	5mA I_F, 5V V_{CE}
		4.0			mA	20mA I_F, 5V V_{CE}
		5.5			mA	30mA I_F, 5V V_{CE}
	Collector-emitter Saturation Voltage $V_{CE(SAT)}$					
	H21A2, 3, 5, 6, H22A2, 3, 5, 6			0.4	V	20mA I_F , 1.8mA I_C
	H21A1, 4, H22A1, 4			0.4	V	30mA I_F , 1.8mA I_C
	Turn-on Time ton		8		µs	V_{CC} = 5V ,
	Turn-off Time toff		50		µs	I_F = 30mA, R_L = 2.5kΩ

Note 1 Special Selections are available on request. Please consult the factory.

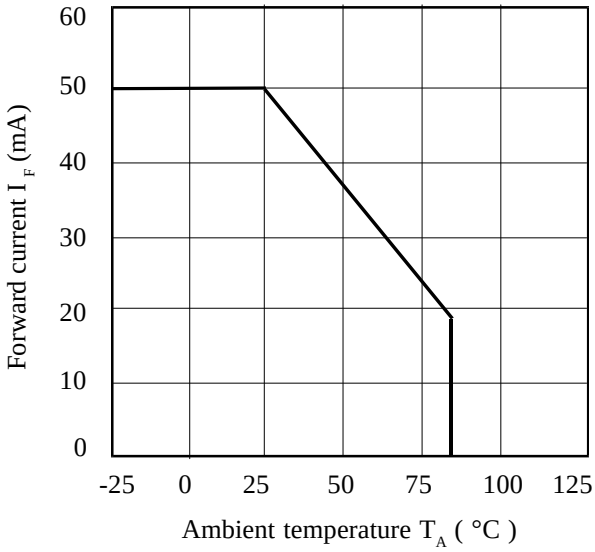
Collector Power Dissipation vs. Ambient Temperature



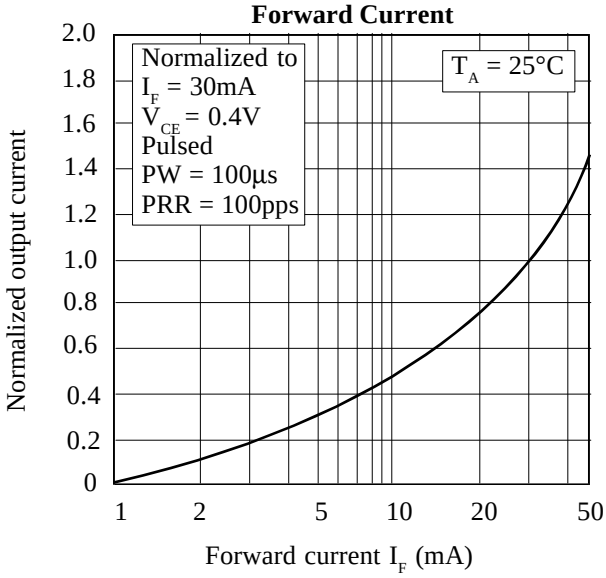
Normalized Output Current vs. Collector-emitter Voltage



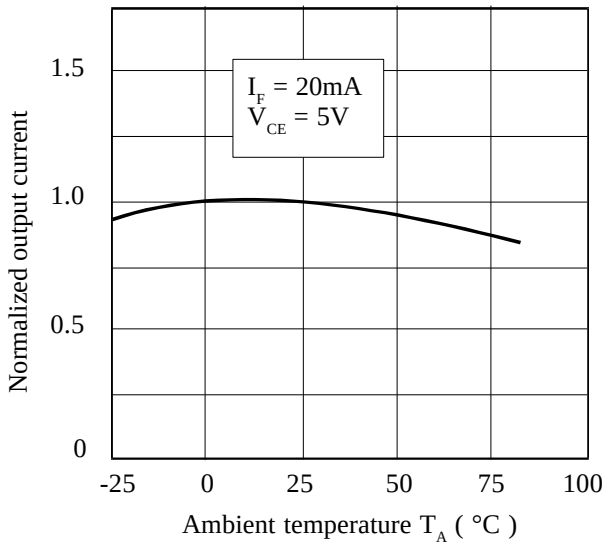
Forward Current vs. Ambient Temperature



Normalized Output Current vs. Forward Current



Normalized Output Current vs. Ambient Temperature



Collector-emitter Saturation Voltage vs. Ambient Temperature